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EXAMINER

DANIELS, MATTHEW J

ART UNIT

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1791

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Response to Arguments

1. Applicant's arguments filed 13 July 2009 have been fully considered but they are not persuasive. The arguments appear to be on the following grounds:

a) With respect to Claims 8 and 14, Choi teaches a material having a viscosity of 0.01 to 100 centipoise which is cured while the template is disposed on the polymer so that the material will harden and assume the shape of the space defined by the gap. Jacobson uses a liquid resin (Sylgard-184) having a viscosity of 3900 centipoise, therefore, the references are using completely different liquids. Therefore, stating that this is merely a rearrangement is not appropriate. Jacobson also notes that the thickness of the liquid must be sufficiently small, and there must be a sufficient surface energy mismatch that the liquid is not withdrawn upon removal of the stamp.

b) One would not expect a fluid to retain its shape upon removal unless the liquid was highly viscous. However, the liquid in Choi will not likely retain its shape upon removal since the viscosity is a factor of 40 different (from that of Jacobson).

c) One would also need to investigate the contact angles between the liquid and the substrate, and provide a sufficient energy mismatch between the stamp and liquid. One would have to engage in an inordinate amount of experimentation to determine if such mismatches exist and whether removal of the stamp would withdraw liquid. The rejection (1) makes leaps in logic, (2) requires one to ignore teachings of each of the references, and (3) requires one to infer teachings which simply do not exist.

d) Hu would be inoperable when combined with Jacobson.

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e) Claim 12 does not teach “forming a polymer structure having the physical feature” as recited in Claim 12.

2. Response:

a) As a factual issue, the Examiner submits that Applicants' argument with respect to the “liquid” of Jacobson being the Sylgard-184 having a viscosity of 3900 centipoise is incorrect. Jacobson teaches that the curable silicone material (Sylgard-184) is cured into a solid plug (3:55-65) to form the stamp (3:63-65). This stamp is then applied to a liquid (4:40). The Examiner respectfully submits that it is the liquid that is being relied upon, rather than the process of making a stamp. The liquid can be a material such as a curable acrylate (8:59-61), which, following removal of the stamp (8:62-63), is cured into solidity by exposure to UV radiation (8:63-65). In the process of Choi, the process uses UV curable compositions such as acrylates ([0012]). The Examiner submits that the basis for Applicants' argument (which points to the stamp material of Jacobson rather than the liquid material) is incorrect. Furthermore, the Examiner has taken the position that the independent claims recite an obvious rearrangement of steps, and provided the Jacobson process as evidence that such a rearrangement is obvious. Applicants do not appear to allege any unexpected result. Therefore, it is unclear why the claimed process is more than an obvious rearrangement of steps already disclosed by the prior art.

b) First, Applicants do not provide evidence to support the assertions and assumptions made by the argument. Second, as noted above, the materials of Choi and Jacobson are similar in composition and are not a factor of 40 different in viscosity as asserted by Applicants. Third,

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it is only necessary to the Choi process that the application of curing light partially or substantially cure the liquid. See Choi, [0015] and Claim 148. It is not a requirement of the Choi process that the liquid be fully cured to the extent that additional curing (after removal of the stamp) is impossible. Choi merely suggests that the liquid replicate the shape of the template and be cured to a point where it replicates the template. See Choi, [0015] where it is disclosed that the liquid must be merely “at least partially cured.” One having knowledge of the Jacobson process would have recognized that curing to solidity could occur after removal of the stamp.

c) The Examiner respectfully disagrees generally with the argument, and submits that the argument overlooks the similarity in materials between the two references.

d) The rejection does not appear to cite any Hu reference, and even if this were intended to refer to Choi, the combination is not inoperable. Choi requires at least partial curing in contact with the template (which is not precluded by the claim), and one having knowledge of Jacobson would have recognized that further curing could occur after removal.

e) The argument does not elucidate what further process step is performed which makes this claim further limiting over Claim 8. It is therefore submitted that the polymer structure would inherently result from the combination of references set forth in the rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. DANIELS whose telephone number is (571)272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Matthew J. Daniels/
Primary Examiner, Art Unit 1791
7/29/09